

MEMORANDUM
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
West Central Regional Office

3019 Peters Creek Rd.

Roanoke, VA 24019

SUBJECT: Meeting Minutes, New River PCB Source Study Citizens's Committee

TO: Committee Members

FROM: Jay Roberts, DEQ-WCRO

DATE: June 21, 2002

COPIES: Khizar Wasti, VDH; John Copeland, DGIF; Jean Gregory, DEQ; Alex Barron, DEQ; Michael Scanlan, DEQ

The first meeting of the New River Polychlorinated Biphenyls (PCB) Source Study Citizen's Committee was held on Thursday, April 25, 2002, at the New River Valley Competitiveness Center. Twenty-two people attended the meeting, including presenters, and fifteen persons signed-in.

Dr. Michael Scanlan, Department of Environmental Quality (DEQ), started the meeting by asking that committee members introduce themselves. Members in attendance were David Bernard, Darliet Colley, Phil Lockhard, Charles Maus, W. Tom Miller, Rick Roth, and Llyn Sharp. Representing Sean Hash was Bryan Sinclair and representing Ron Powers was Mike Whitmore. Stacey Wheeler, Legislative Assistant to Delegate Dave Nutter, requested that Delegate Nutter be advised of future committee meetings.

After introductions, Dr. Scanlan provided an overview of the committee's charge: On August 6, 2001, the Virginia Department of Health (VDH) issued a fish consumption advisory for carp for the New River encompassing areas between the Route 114 bridge and the Virginia - West Virginia state line. The members of the committee are requested to assist DEQ with efforts to locate potential sources of PCBs that may be reaching New River and contributing to elevated fish tissue levels.

At the conclusion of opening remarks, four presentations were made to provide members with background information on PCBs. Presentations were titled as follows:

- **"What are PCBs?" by Jay Roberts, DEQ**
- **"Where and How Much PCBs are in New River?" by Jean Gregory, DEQ**
- **"Why a Fish Consumption Advisory for Carp?" by Dr. Khizar Wasti, VDH**
- **"PCB Source Identification Workplan" by Jay Roberts, DEQ**

Copies of these presentations are attached to the minutes. Numerous questions were asked in the course of the presentations, and questions and answers are summarized in Attachment A.

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Dr. Wasti provided copies of three documents to committee members:

- fact sheet entitled "Polychlorinated Biphenyls" prepared by the Agency for Toxic Substances and Disease Registry,
- fact sheet entitled "VDH Guideline for Issuance of Fish Consumption Advisories Due to Contamination of Fish with Polychlorinated Biphenyls (PCBs)," and
- a fact sheet entitled "Frequently Asked Questions about Polychlorinated Biphenyls (PCBs)" prepared by VDH.

At the conclusion of presentations, members discussed items they would like to see addressed in future meetings. A number of specific suggestions were provided, including:

- checking additional catfish for the presence of PCBs in tissues;
- testing fishermen's catches for PCBs;
- sampling sediments in tributaries;
- sampling sediments at the upper end of Claytor Lake and Peak Creek to see if old industrial sources could be contributing PCBs to the advisory area;
- evaluating sediment transport studies to see if sediments move into and out of Claytor Lake;
- identifying and mapping sediment data monitoring points with elevated PCB levels;
- sampling potential PCB source sites including, but not limited to, American Telephone and Telegraph (former American Viscose), a closed tannery upstream of Route 460 bridge at Pearisburg; Celanese; a closed Radford City dump; Radford rail yards; mines and quarries on Stony Creek; Radford Army Ammunition Plant; Intermet; and municipal treatment plant sludge storage areas.

At this point, the members met in closed session to elect a chairman. Dr. Rick Roth was elected to chair the "Search Committee."

Dr. Roth, with concurrence of members, requested that correspondence with members occur via e-mail. It was indicated that future committee meetings would be announced via publication in the Virginia Register and by sending notices to those who previously attended a committee meeting. Members encouraged DEQ staff to contact the "New River Current" to see if meeting announcements would be published in the paper as a public service announcement.

A date for the second committee meeting has not been set. The Chair requested that DEQ develop and submit a sediment sampling plan to committee members and then reconvene the committee to receive comments on the sampling plan.

The meeting adjourned at this point.

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Attachment A -- Questions about PCBs

Q1: How many fish advisories in Virginia are based upon PCBs?

A: Of the ten fish consumption advisories issued in Virginia as of December 31, 2001, 7 were issued for PCBs, 3 for mercury, and one for kepone. Portions of the Shenandoah River are listed for both PCBs and mercury.

Q2: What tissue levels are considered to be above background?

A: In fish, a tissue level greater than about 10 ppb (micrograms PCBs per milligram fish) would probably be considered above background. A tissue level of 54 ppb is sufficient for DEQ to indicate that the beneficial uses of the waterbody are "threatened." A tissue level of 600 ppb is sufficient for VDH to issue a fish consumption advisory.

Q3: Is DEQ testing for PCBs in Claytor Lake?

A: Yes, PCBs were detected in fish tissue within and upstream of Claytor Lake in the Year 2000 as follows:

Clayton Lake at the Dam	Carp	223	ppb *
Claytor Lake near Hiwassee	Carp	139	ppb
Peak Creek near Claytor Lake	Carp	150	ppb
Peak Creek at Route 99 bridge	Smallmouth	71.4	ppb
Reed Creek near Grahams Forge	Carp	104	ppb

** Micrograms PCBs per kilogram fish = ppb*

The PCB levels warrant DEQ listing the fish consumption use of Claytor Lake and a portion of Reed Island Creek as "threatened," but does not warrant issuance of a fish consumption advisory by VDH. The PCB levels in Peak Creek warrant DEQ listing the fish consumption use of Peak as "impaired" based upon PCBs, but does not warrant issuance of a fish consumption advisory by VDH. A human health risk screening value of 54 ppb is used to determine whether fish tissue samples indicate a potential impact to the fish consumption use and a value of 600 ppb is used by VDH as indicative of the need to issue a consumption advisory.

Q4: Is fish age or size a factor in the amount of PCBs that an individual fish may contain?

A: Yes, because PCBs bioaccumulate with time, larger fish typically show higher levels of PCBs. DEQ selectively samples larger, older fish thinking that if the larger fish have low levels of PCBs in their tissues, then the entire population of the species being tested should also have low levels of PCBs in their tissues. These fish are also the size most likely to be consumed by fishermen.

Q5: Do you analyze fish organs, such as the liver and kidneys, in whole fish samples? Because of the liver and kidneys function to remove toxins from the body, you would expect higher levels of PCBs to be present in these organs.

A: In the past, whole fish analyses included all organs, including the liver and kidneys. We are currently analyzing fillets because this is the portion of the fish people eat.

Q6: What are the levels of PCBs in fish at Radford?

A: Radford "Year 2000" fish tissue analyses were as follows:

Flathead Catfish	12.1	ppb
Smallmouth Bass	6.39	ppb
Northern Hogsucker	2.56	ppb
Rock Bass	2.40	ppb

These levels would not cause VDH to issue a fish consumption advisory or DEQ to consider the river's use for fish consumption to be "threatened" at this point in the river.

Q7: What PCB concentrations have been found in New River sediments?

A: Prior to the meeting, 14 sample stations were checked for PCB levels in sediments. Approximately 67 sediment samples were collected and analyzed at nine sample points on the New River and one station each at the mouth of Rich Creek, Wolf Creek, Stony Creek, Little Stony Creek, and Little River. Three sediment samples from the Eggleston area of New River exhibited a PCB concentration greater than a "screening value" of 22.7 ppb. One sediment sample taken near Whitethorne and one sediment sample taken near Glen Lyn exhibited a PCB level greater than 22.7 ppb. One sediment sample on Stony Creek exhibited an elevated level of PCBs. It is noted that the quantification level used in older analyses may not have been low enough to characterize PCBs at the screening levels now being used. DEQ staff will provide a more detailed analysis of PCB concentrations in sediment data in the next committee meeting because of the preliminary nature of this data summary.

Q8: Have all the rivers in VA been checked for PCB contamination?

A: All river basins in Virginia are routinely checked for the presence of PCBs, but not all rivers are checked. River basins are checked on a rotating schedule, and monitoring locations change from rotation to rotation based on eight site selection criteria. These criteria include a historical data review, spatial distribution, specific water quality problems, major tributary status, external requests made by DEQ staff and other state agencies, point source discharges, nonpoint source discharges, and status of a river as a major fishery.

Q9: When will the Year 2001 fish and sediment data be available?

A: Forty fish tissue samples have been submitted to the Virginia Institute of Marine Sciences for analysis. These samples were collected in October, 2001. We are soliciting the committee's input as to whether sixteen sediment samples collected in 2001 should be analyzed. We expect to have analytical results for fish available in middle to late summer.

Q10: How do we find the sources of this environmental legacy?

A: We will evaluate facilities in the watershed that may have manufactured, used, stored, or disposed of PCBs. Based upon the initial screening of these facilities, certain facilities will be selected for on-site sampling. These samples will provide evidence of whether PCB releases have occurred that may be affecting the New River. Committee members will advise DEQ of potential sources that should be evaluated, assist in selection of sites for further sampling, and review sampling plans.

Q11: Does vegetation take up PCBs?

A: Vegetation can take up PCBs, and PCBs can also become adsorbed to the surface of vegetation.

Q12: Why are the PCBs in Carp, but not Catfish?

A: Catfish and carp have different feeding patterns such that catfish may not be exposed to PCBs as much as the carp. We have and will collect additional catfish samples to determine if PCBs are present in catfish in the New River.

Q13: Are particular aroclors, another name for PCBs, being detected in New River?

A: All 209 congeners are currently being analyzed. Usually on the order of about 30 to 40 of the congeners are being reported from the analyses. Most, if not all, of the PCBs being detected have probably been present in New River for more than 20 years; Careful PCB handling practices were instigated in the late 1970's.

Q14: Are smaller streams being tested, like the stream near the closed Cloyds Mountain landfill?

A: The site selection criteria discussed in the response to question 8 are used to select both large rivers and small streams for sampling. We use knowledge obtained from reviews of historical records and staff recommendations about specific sources to determine what streams to sample, both small and large. In the case of Cloyds Mountain landfill, at the time fish and sediment samples were collected in previous sampling cycles, we did not have any information to indicate that it could be a potential source of PCB contamination.

Q15: Has there been any correlation between elevated PCB levels and affected wildlife populations? Are reproduction abilities of wildlife harmed?

A: Cause and effect relationships are difficult to establish for any toxic chemical in wildlife because of the difficulties inherent to field studies. Studies indicate that PCBs may cause or contribute to immune system suppression and developmental effects in fish, birds, and mammals. Most research on fish indicates that reproduction is not affected, but development of juvenile fish may be affected. Certain immunological effects may also be observed in fish. The National Research Council published a book entitled "Hormonally Active Agents in the Environment (1999)" that provides a literature review of substances, such as PCBs, that may be causing environmental effects at low levels. **We know of no site-specific studies available for New River.** To manage potential human health risks, VDH has advised limiting consumption of carp taken from the New River between the Route 114 bridge and the Virginia - West Virginia state line. We will provide more information on PCB affects on wildlife if requested by the committee.

Q16: Is there any correlation between population effect on specific aquatic species and the presence of PCBs in New River?

A: It is difficult to show specific correlation between population data for one species of fish and the presence of one chemical, such as PCBs, in the stream. **We are not aware of any studies in New River that have shown a relationship between PCB levels and populations of any species in the river.** To manage potential human health risks, VDH has advised limiting consumption of carp taken from the New River between the Route 114 bridge and the Virginia - West Virginia state line.

Q17: Have developmental changes in fish been observed as a consequence of PCBs being detected in a waterbody?

A: As noted above, most research on fish indicates that reproduction is not affected, but development of juvenile fish may be affected. Certain immunological effects may also be observed in fish.

Q18: Can samples be taken to check for body levels of PCBs?

A: Yes. The difficulty is that we do not know what level of PCB in the human body would indicate that there is an elevated risk of disease or a consequence of the PCBs being present in the body.

Q19: What are the concerns, either health or environmental, with the levels of PCBs being measured in New River?

A: Long-term consumption of fish containing PCBs over a human lifetime may present a health risk. By issuing a fish consumption advisory, the Commonwealth is trying to manage risk by advising the public not consume certain types of fish caught in certain waters. We are exercising caution and trying to manage exposure to PCBs in order to protect public health.

Q20: What dosing levels were used in animal trials that have given rise to public health concerns?

A: According to the National Research Council, doses have been administered to rats at sublethal doses for periods of up to two years to observe the potential for PCBs to cause cancerous tumors in test subjects. Doses of up to 100 ppm were administered. Based on the potential that PCBs may induce cancers of the liver, it has been classified as a possible carcinogen.

Q21: What about other chemicals that would be of concern in the New River?

A: No other chemicals have been detected in the portion of New River where the carp fishing advisory has been issued at levels that would warrant issuance of a separate health advisory. Cadmium, lead, and zinc have been detected in sediments in a segment of New River extending from the Route 114 bridge to the mouth of Little Stony Creek at levels that appear to warrant DEQ listing aquatic life uses of this portion of New River to be "threatened." Zinc has been detected in sediments in a segment of New River extending from the mouth of Wolf Creek to the mouth of Rich Creek at levels that appear to warrant DEQ listing aquatic life uses of this portion of New River to be "threatened."

Q22: Do carp live longer than other fish?

A: Carp are longer lived than bass, for example. DEQ selectively samples larger, older fish thinking that if the larger fish contain low levels of PCBs, then the entire population of the species being tested should also have low levels of PCBs in their tissues.

Q23: How do PCBs enter a fish's body?

A: The majority of PCBs appear to be absorbed through contact with the gill membranes of the fish. Some PCBs may be consumed via the food chain, but we do not think that is the case with carp.

Q24: Are site-specific PCB sampling plans developed?

A: Yes, there is a specific plan to sample fish at three locations of the New River in the year 2002. These locations are at Glen Lyn, Pembroke, and Whitethorne. Sediment samples will be collected at the time the fish are sampled. These samples are being collected at the request of the Virginia Department of Health and the purpose of the Year 2002 fish sampling will be to determine if the fish advisory needs to be changed in any way.

Sediment samples are proposed to be collected in the year 2002 by DEQ's regional office, but these sampling plans have not been finalized. The primary purpose of sediment sampling is to help characterize the extent of sediment contamination in New River and assist with source assessment.

Site-specific sampling of municipal or industrial facilities **is not** currently scheduled. It is proposed that site specific sampling be scheduled after DEQ staff completes initial source evaluations, including an analysis of the potential for PCBs to be present at a facility based upon historical PCB use and management practices, and after DEQ has identified potential facilities that warrant sampling.

Q25: Do we have the authority to sample facilities that we suspect caused PCB pollution?

A: We are looking to work with facilities on a cooperative basis to try to identify potential sources of PCBs. There is an "Inspection and Entry" clause in facilities issued wastewater discharge permits.

Q26: What is the upper reach of the study area?

A: At this time, the source assessment work will focus to the New River reach beginning downstream of Clayton Lake Dam. Based on questions by members, we will assess historical records for PCB levels in fish and sediment upstream of the dam as part of the initial investigative effort.

Q27: Are PCBs potentially arising from nonpoint sources?

A: It is possible that PCBs are originating from non-point sources and we will investigate potential non-point source contributions of PCBs to New River.

Q28: Is it possible the PCBs are coming from a current source?

A: Current sources probably do not include point sources or effluent discharges, however, erosion of land areas where PCBs have historically collected due to leaks, spills, disposal, etc., may constitute a current nonpoint source contribution of PCBs to the New River. We propose evaluating such areas as part of the source investigation.

Q29: Do we have information from Bluestone Lake?

A: Yes, six fish analyses from Bluestone Lake were provided to us by West Virginia. We are not aware of any sediment samples from the lake in West Virginia. We will look for additional information as part of the initial assessment work.

Q30: Do you sample the fish the same time every year?

A: No, since we do not expect to observe seasonal variability in fish tissue concentrations we typically conduct sampling as staff and resources become available.

Q31: Are there any sediment transport studies for the upper New River Basin?

A: Not that we are aware of, but we will look for studies conducted by the U.S. Geological Survey, U.S. Army Corps of Engineers, American Electric Power, etc. that may help us better understand the potential for PCBs bound to sediment to be transported through the lake to the lower New River.